

HOUSER & HAINES MANUFACTURING COMPANY

[INCORPORATED]

—OF—

STOCKTON, CALIFORNIA, U. S. A.

BRANCH HOUSES
SAN FRANCISCO, CALIFORNIA
LOS ANGELES, CALIFORNIA
CALGARY, CANADA
NEW YORK, NEW YORK

BRANCH HOUSES
SPOKANE, WASHINGTON
WALLA WALLA, WASHINGTON
PORTLAND, OREGON
PEORIA, ILLINOIS

PLOW DEPARTMENT

BULLETIN P. 47

ESTABLISHED 1873

JANUARY 1ST, 1913



TRACTION ENGINE PLOWS

DAVIS DISC PLOW.

SIMPLICITY AND STRENGTH
THE KEYNOTE OF CONSTRUCTION

The Davis Disc is a utility Plow. It is a Plow for all land. It will handle perfectly the hardest dry adobe or the toughest virgin soil. Lighter soils are naturally easy prey. It has been thoroughly proven out under all conditions, and the results it has given are full proof of its efficiency.

The Davis Disc Plow is built from the ground up for Traction Engine work. It is not a Horse Plow reinforced. It is constructed in the same scientific manner as a Traction Engine. Every part is built much stronger than really seems necessary, and this extra factor of safety is your insurance of steady running and small repair bills.

FRAME.

The Frame of the Davis Disc Plow is composed of two heavy section 6-inch steel "I" beams running parallel to each other. These are spaced with heavy cast bridges. This construction makes a perfectly rigid frame and one that will not spring under any condition.

DISC ARMS OR STANDARDS.

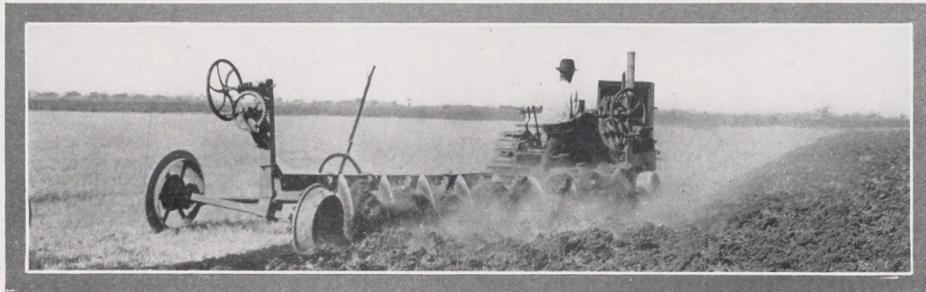
The Disc Arms or Standards are made extra heavy and strong. They slant downward from the frame and give the lower edge of the disc a position 24 inches lower than the center line of the frame proper. This places the frame of the Plow high above the ground and gives great clearance. Clogging, one of the serious objections to other plows, is entirely overcome.

DISC BEARINGS.

Ball-bearing Discs insure light running of Davis Plows. The bearing proper is composed of 20 A-grade steel balls $\frac{3}{8}$ of an inch in diameter. These balls run in a chilled race. With this bearing no matter from what angle the strain is exerted on the disc, it will turn perfectly free and cannot bind. Experts estimate that this bearing reduces the draft of the plow at least 12 per cent.

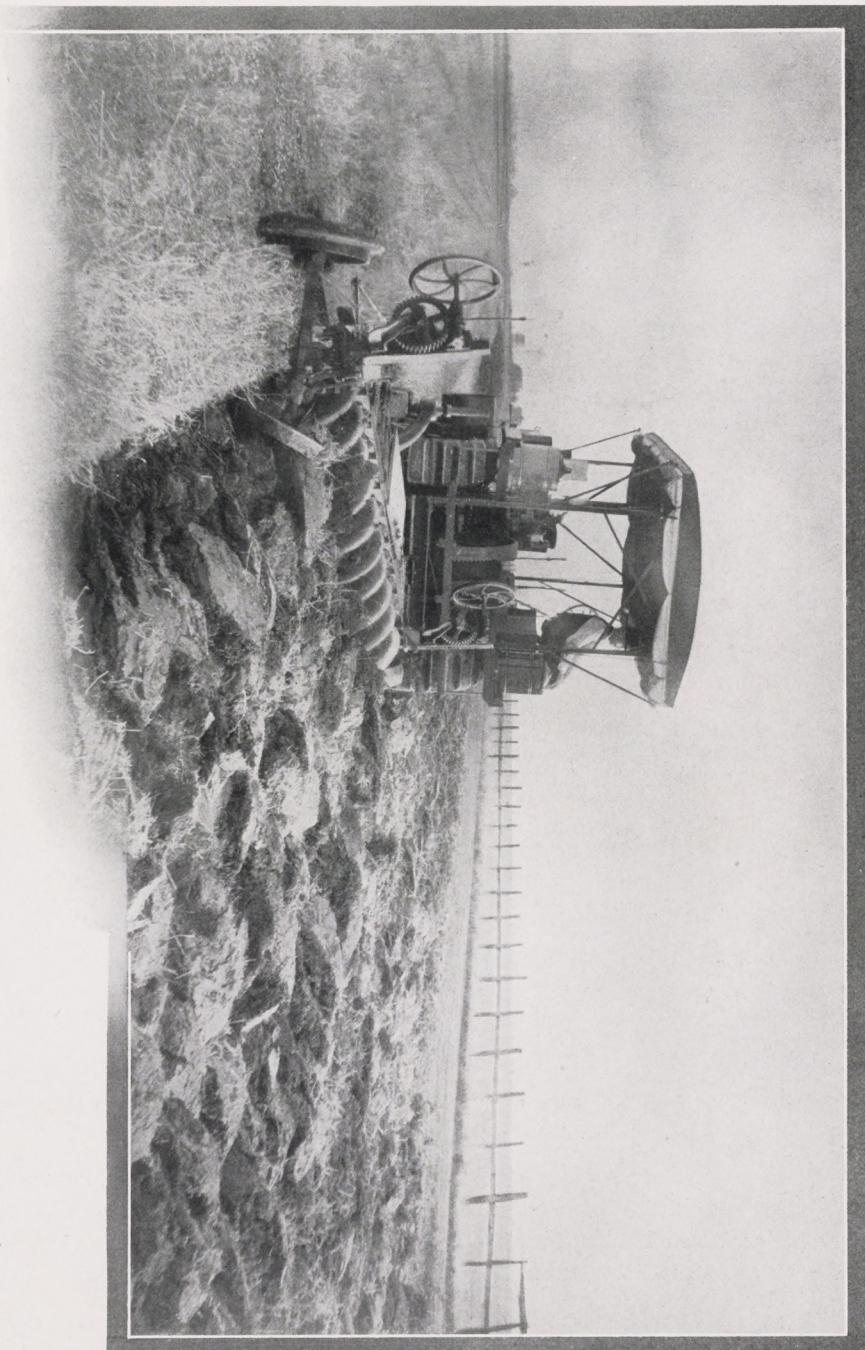
DISC ADJUSTMENT.

Davis Disc Plows are all fitted with adjustable discs. In other words the discs may be adjusted to take the ground from four different angles. This is accomplished with the aid of



BABY CATERPILLAR PULLING 8-DISC DAVIS PLOW IN HARD DRY GROUND

HOUSER & HAINES MANUFACTURING COMPANY, STOCKTON, CALIFORNIA



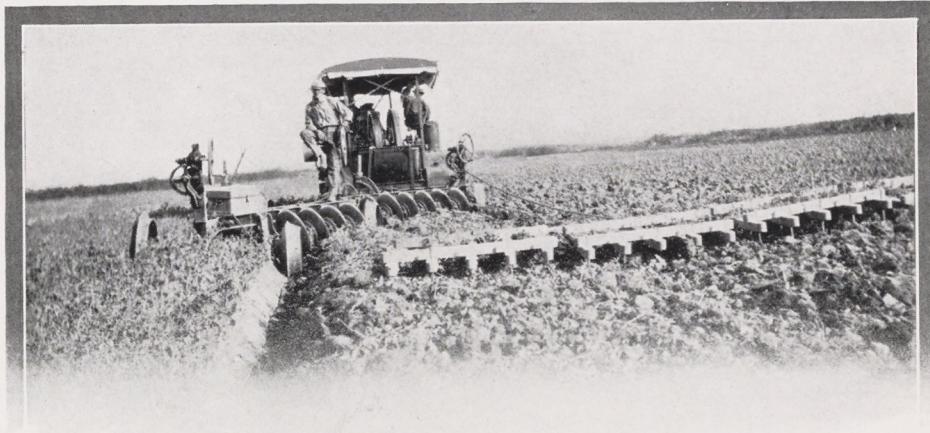
TEN FURROWS, ELEVEN INCHES DEEP,
DAVIS DISC PLOW AND HOLT CATERPILLAR PLOWING THE TOUGHEST WET ADOBE IN SAN JOAQUIN COUNTY

HOUSER & HAINES MANUFACTURING COMPANY, STOCKTON, CALIFORNIA

an eccentric bushing and a $\frac{1}{8}$ -inch set-screw. Much of the success of the Davis Plow is due to this adjustment, for no matter what kind of land is encountered, there is an adjustment to exactly meet the condition.

DISCS.

The Discs used on Davis Plows are made of the finest disc steel. Those regularly fitted are 26 inches in diameter. This size has been found to be far the best for general work. On special order we can fit plows with either 24 or 28-inch discs, or any man who has a Davis Plow can put either of these sizes on at any time.



IN FRESNO COUNTY.
TWO 6-DISC DAVIS PLOWS AND HARROWS IN HARD DRY GROUND

TAKING OFF DISCS.

Davis Disc Plows are made with the provision of taking off discs if the load is too heavy. Two discs may be removed from any Davis Plow and the rear wheel still kept in the furrow. As many as three and even four discs have been removed at times to adjust the load to the capacity of the engine. This is a feature that should not be overlooked, as in purchasing you can secure a set large enough for light work and still have an outfit adapted to the heaviest land.

CONTROL.

The Davis Disc is the most perfectly controlled plow on the market. The control is gained by using two heavy wheels in the rear and placing them far behind (36 inches) the rear disc. The great leverage given by this arrangement holds the plow perfectly and overcomes all tendency to tail. To further insure that the plow will remain in place in the hardest ground, a lever is fitted to the rear axle with which any cut desired can be given to the rear wheels. These control methods are EXCLUSIVELY DAVIS DISC PLOW FEATURES AND CAN BE FOUND ON NO OTHER PLOW.

HOUSER & HAINES MANUFACTURING COMPANY, STOCKTON, CALIFORNIA

COUPLING.

Another feature of great interest is the close, flexible coupling of two or more Davis Plows. This is accomplished by hooking the front of the rear plow to the rear of the front one. The weight of the front end of the rear plow tends to make the front plow even more steady, and of course a very short coupling is gained. The advantages of this arrangement are three-fold:

- 1st. It insures that there will be no skips between plows, for when coupled together in this manner every plow must cut its own width.
- 2nd. The load is brought close to the engine, an advantage that every owner will quickly recognize.
- 3rd. The flexible coupling allows the plows to follow the surface of the ground and plow to an even depth on mounds and in hollows.

RAISING DEVICE.

The Raising Device on the Davis Plow is another exclusive feature. It is of the worm and worm-gear type and is built strong enough to lift a load many times the weight of the plow. The ease with which it operates can best be realized when we say a 15-year-old boy can handle a set perfectly. Another advantage of this device is that there are no springs and catches to wear and break, and the plow will always stay just where it is set.

WHEELS.

All Wheels are made extra large and strong. All flat-face Wheels are extra wide. The flanges on flange Wheels are very deep. Davis Disc Plow Wheels are made for service. They will not break.

WHEEL BEARINGS.

All Wheels on Davis Disc Plows are fitted with removable BUSHINGS. These are made absolutely Dust Proof and will wear indefinitely. All bushings are fitted with large, Hard Oil Cups.

AXLES.

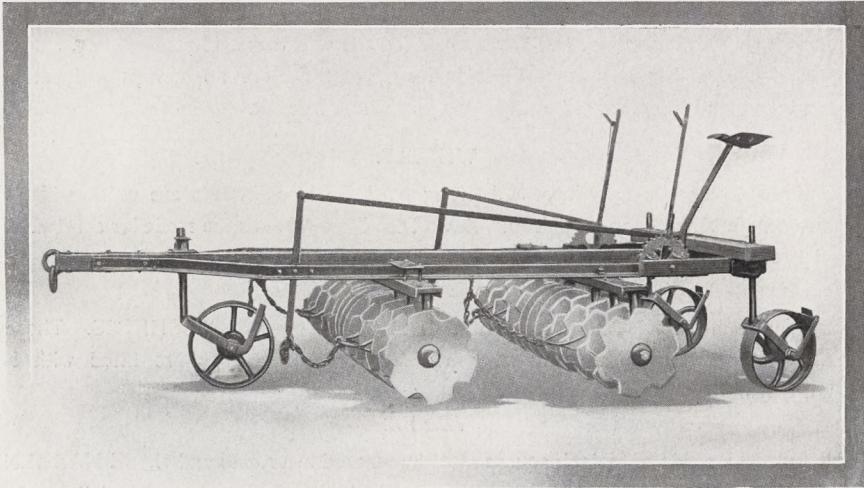
All Axles are made of 2½-inch square steel hammered to a round and CASE HARDENED. By making these axles extra large and case hardening them, long wear and light-running qualities are assured. Davis Plow Axles are trouble proof.



TWO SET OF DAVIS PLOWS AND TWO CATERPILLAR TRACTORS AT WORK
ON A LARGE FARM IN THE SAN JOAQUIN VALLEY

HAINES SPECIAL TRACTION ENGINE DISC HARROW.

The Haines Special Traction Engine Disc Harrow is built especially to meet the demand for a Disc Harrow that will thoroughly pulverize the land and have strength enough to withstand the severe strain of a Traction Engine. That the Harrow shown in the photograph below has filled this demand is clearly demonstrated by the large number that are now in use.



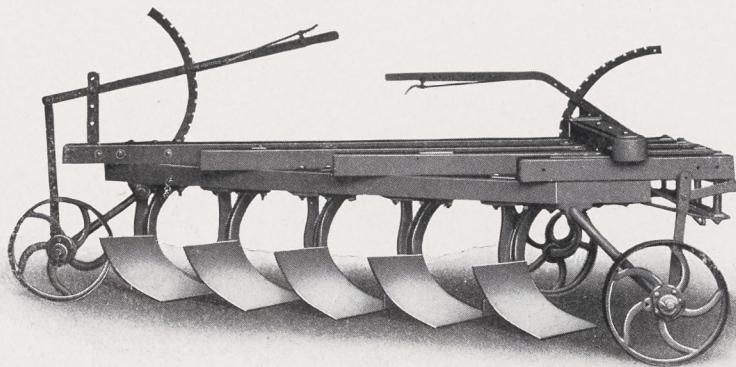
DOUBLE DISC HARROW FITTED WITH CUT-AWAY DISCS

The main frame of this Harrow is composed of heavy section 3-inch Angle Steel. The Disc Carrying Beams are 6-inch channels with $\frac{3}{8}$ -inch web. The Disc Standards are extra heavy. The Disc Carrying Shafts are $1\frac{3}{8}$ inches in diameter. The Discs are 20 inches in diameter and are of the heavy pattern. From these specifications it can be clearly seen that the Haines Special can be compared with no other Harrow on the market and is strictly a Traction Engine Harrow for Traction Engine work.

For use in soils where the heavy Double Disc is not required, we build a Single Disc Harrow. This Harrow is quite similar in construction to the one shown above, and is an excellent tool for hard work.

TRACTION ENGINE REVERSIBLE MOULD GANG PLOW.

The illustration below shows the Traction Engine Reversible Mould Gang Plow. This Plow is adapted to the lighter or sandy soils, and for work in this class of ground it is certainly the best Plow yet produced. It is patterned, in a measure after the famous Stockton Reversible



5-GANG, 12-INCH TRACTION ENGINE REVERSIBLE MOULD PLOW

Gang Plow, for use with horses, although of course it has been greatly strengthened to meet the requirements of Traction Engine Plowing. It should be distinctly understood that this Plow is in no way a Horse Plow, but a Traction Engine Plow, as the following specifications will show:

SPECIFICATIONS

FRAME—Clear straight-grained Oregon pine.

MAIN BEAM—4 x 12.

CENTER BEAMS—4 x 6.

HANDLE BEAM—4 x 6.

FURROW BEAM—4 x 6.

CAP—4 x 6.

MAIN BEAM plated with steel above each standard.

CAP plated with steel total length.

STANDARDS—"Wagener," 20-inch.

SWIVEL—1 $\frac{3}{4}$ -inch steel.

WHEEL CRANK—1 $\frac{1}{2}$ -inch steel.

AXLES—1 $\frac{1}{4}$ -inch steel.

WHEELS—Rear and Furrow, 20-inch.

WHEEL—Swivel, 18-inch.

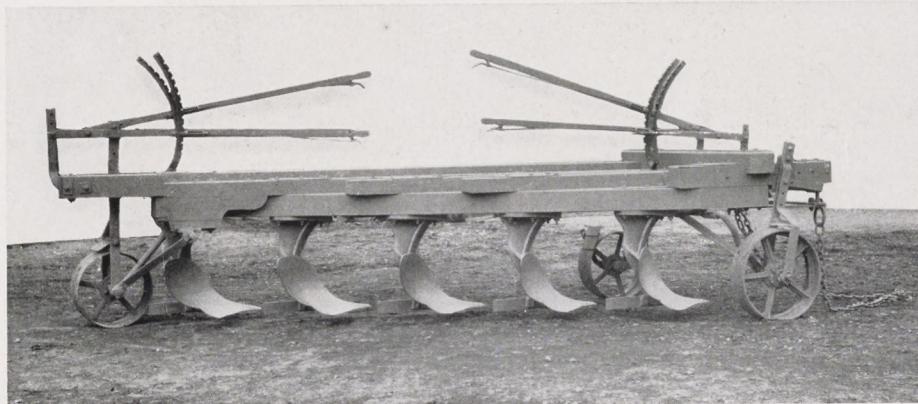
BOXES—Cast; removable; bolted to hub with 4 large bolts.

The Traction Engine Reversible Mould Gang Plow is made to cut both 10 and 12-inch furrows. It is made in 3, 4 and 5 gang, and for light work no better or cheaper plow can be found.

HAINES SPECIAL TRACTION ENGINE MOULDBOARD PLOW.

The Haines Special is the strongest and most durable Mould Board Plow on the market. It is built from the ground up for Traction Engine work. Strength is a dominant feature, and after several years of successful use we are safe in saying that it is better adapted to Western conditions than any other Mouldboard Plow.

The advantages of the Haines Special over other types of Mouldboard Plows are many. Its scientifically constructed, steel plated Wood Frame has more strength than any Steel Frame Mouldboard Plow built. It has the further advantage of being easily and cheaply repaired, if any accident should happen.



5-GANG, 14-INCH HAINES SPECIAL PLOW

The Standards are of cast construction and are extra heavy. They are 26 inches high, giving the Plow by far the greatest clearance of any on the market. This feature will be much appreciated by the man who has trash or weeds to contend with.

The Wheels are made very heavy and strong. They have wide faces and removable hubs. The Axles are of large diameter and have an exceedingly long bearing in the hubs. The Wheel Irons, Levers and all other parts are made in proportion, and considered as a whole, it is the most substantial Mouldboard Plow built.

This Plow is furnished with Chilled or Steel Bottoms, as desired. It is made to cut 12 or 14-inch furrows, and in 3, 4 and 5 gang. For all around work, where a Mouldboard Plow is desired, the Haines Special will give better satisfaction than any other.